a global video bus which [routes] establishes a direct connection between the processing module and said at least one video processing module to route the video data between said processing module and said at least one video processing module; and

a global control bus which provides said [control] configuration data to/from said processing module from/to said at least one video processing module, said global control bus being separate from said global video bus.

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2. (Amended) The system of claim 1, wherein said video data is coupled with associated video timing signals synchronized to a system clock signal, and each video processing module comprises a crosspoint switch coupled to the global video bus, the cross point switch [which routes] routing said video data and its associated video timing signals to/from respective ones of the plurality of parallel pipelined video hardware components, said timing signals indicating when the video data represents active video information.

13/4. (Twice Amended) The system of claim 1/2, wherein [at least one video processing module] the plurality of parallel pipelined video hardware components comprises a configurable arithmetic logic unit (CALU) responsive to said video data and its associated video timing signals so as to automatically compensate for differences in input video timing between respective images and to provide image accumulations and [dual image] pointwise video processing operations [and] on a pair of input images.

B2

14/8. (Amended) The system of claim 1/2, wherein [at least one video processing module comprises] the plurality of parallel pipelined video hardware components includes at least one pyramid filtering processor which generates [pyramid] spatially filtered representations of the video data at respectively different resolutions so as to facilitate real-time processing of said video data [for said particular image processing tasks of said video processing system].

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~~6.~~ (Twice Amended) The system of claim ~~2~~, wherein the modular video processing system includes a plurality of video processing modules and each video processing module comprises a connection for at least one daughterboard the connection including means for routing at least a portion of the [control] configuration data between the processing module and the daughterboard and means for coupling the daughterboard to the crosspoint switch.

4 3
~~13.~~ (Twice Amended) The system of claim ~~12~~, wherein said processing module includes means for using the [control] configuration data to program the at least one video processing module to perform at least one of the different video processing operations on the video data and means for providing a synchronous start signal to begin the at least one video processing operation.

10 8
~~19.~~ (Twice Amended) The system of claim ~~17~~, wherein said [control] configuration data comprises respective control signals for each hardware component of said video processing system, wherein said functions of said hardware control library manipulate said control signals to program said hardware components for each of said different video processing operations.

20. (Twice Amended) A method of creating a modular video processing system, comprising the steps of:

providing video data via a global video bus;

providing a global control bus separate from the global video bus;

connecting a processing module containing at least one general purpose microprocessor to said global video bus and said global control bus said microprocessor controlling hardware and software operations of said video processing system using [control] configuration data and processing said video data;

connecting [to] said global control bus and said global video bus to at least one video processing module which contains parallel pipelined video hardware that